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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/673,453

09/30/2003

Robert D. Horning

H0004181

2002

7590

11/18/2005

Matthew S. Luxton  
Honeywell International, Inc.  
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EXAMINER

TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/673,453

Applicant(s)

HORNING, ROBERT D.

Examiner

Tamai I.E. Karl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 22-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-15, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horning et al. (Horning)(US 2002/0125790) and Ohnstein (US 5180623). Horning teaches multiple electrostatic actuators having two polymeric sheets 112 having conductive 111 and dielectric 114 layers, where the sheets are secured together by adhesive 120. Horning teaches on sheet being flat (figure 6) or both sheets bowing (figure 7). Horning teaches multiple actuators laminated to form a stack. Horning does not teach the circular shape, the egress hole or the conductive and dielectric layers being films, or the velocity being constant after pull in. Ohnstein teaches a circular shaped electrostatic actuator (figure 6a, 6b) with the conductive 8 and dielectric 15 layers being stacked to form the actuator with an egress hole 6 to form a valve. Ohnstein teaches the circular closure plate. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construction the actuator of Horning with the dielectric and conductive layers being circular films with an egress hole to form a valve with a mating surfaces between the electrodes.

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In regards to claim 23, the Ohnstein and the Applicant both teach circular actuator plates, since the Applicant's force is independent of displacement due to the circular configuration, then Ohnstein's force is independent of displacement. Likewise in claim 24, since the Applicant's velocity is constant after pull in, then Ohnstein's velocity is constant after pull in.

3. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horning et al. (Horning)(US 2002/0125790) and Ohnstein (US 5180623), in further view of Scheurenbrand et al. (Scheurenbrand)(US 6182941). Horning and Ohnstein teach every aspect of the invention except, the egress hole in one sheet or one side. Scheurenbrand teaches an electrostatic valve having electrodes in sheets 3 and having holes in only one side or sheet to control the flow of fluid and to use a capacitance sensor to aid in the control of the actuator. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construction the actuator of Horning and Ohnstien the with fluid egress hole in one side to provide a valve with a capacitor sensors improved control over the actuator, and because rearranging parts of the invention requires only routine skill in the art (see *In re Japikse*, 86 USPQ 70).

### ***Response to Arguments***

4. Applicant's arguments filed 9/14/2005 have been fully considered but they are not persuasive. Applicant's argument regarding the restriction is not persuasive. The inventions of Group I and II are mutually exclusive because the device of Group I can be operated without the pull in voltage being applied to opposing surfaces of the cell or

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the force being independent of the displacement, or the cells exhibiting constant velocity, while the driving voltages to minimize loss of Group II can be applied to other devices than Group I, such as, electrical switches, valves, or light modulators without a fluid hole or with metal or silicon sheets rather than polymeric. The Applicant's presentation of the claims in independent form without the particulars of the apparatus claims is evidence of the independent and distinct nature of the claims. The restriction is proper and maintained. The Applicant's argument regarding motivation is not persuasive. Ohnstein clearly teaches that the inclusion of an hole in a flexible electrostatic sheets allows the device to be operated as an semiconductor electrostatic valve. Applicant's argument regarding the unrelated fields is not persuasive. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the field of endeavor is MEMS electrostatic devices, which find use in actuators, sensors, switches, pumps, valves. Applicant's arguments regarding overlapping classifications is not persuasive. There is no requirement in the MPEP or caselaw that prior art references must be from the same classification. Applicant's arguments regarding the actuator of Horning and the valve of Ohnstein is not persuasive, because the valve is an actuator with the function of opening and closing a fluid passage. Applicant's arguments regarding the method of manufacturing the devices is not

persuasive because the limitations are not claimed. The rejections are proper and maintained.

***Conclusion***

5. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the

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examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai  
PRIMARY PATENT EXAMINER  
November 11, 2005



KARL TAMAI  
PRIMARY EXAMINER